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STRUCTURAL-LEXICAL PREDICTABILITY OF MATERIALS WHICH PREDICTOR HAS PREVIOUSLY PRODUCED OR READ.

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THE CLOZE PROCEDURE WAS USED TO INVESTIGATE THE PREDICTABILITY OF LANGUAGE MATERIALS AND TO EXAMINE THE RELATIONSHIP OF THE WRITTEN PRODUCTION OF LANGUAGE AND READING TO STRUCTURAL AND LEXICAL CONSTRUCTS. FIFTY-SIX SOPHOMORES RANDOMLY SELECTED FROM 152 STUDENTS ENROLLED IN INTRODUCTORY PSYCHOLOGY COURSES AT CAMPBELL COLLEGE WERE RANDOMLY ASSIGNED TO TWO TREATMENTS--WRITING MODALITY OR READING MODALITY. THE WRITING MODALITY GROUP WAS INSTRUCTED TO PRODUCE WRITTEN STORIES WHICH WERE DUPLICATED AND PRESENTED TO THE READING MODALITY GROUP. TWO CLOZE TASKS, ONE OMITTING EVERY FIFTH STRUCTURAL UNIT AND ONE DELETING EVERY FIFTH LEXICAL UNIT, WERE PREPARED FOR THE STORIES AND PRESENTED TO BOTH GROUPS 2 DAYS AFTER THE INITIAL WRITING AND READING OF THE STORIES. A TWO-WAY ANALYSIS OF VARIANCE WAS MADE OF THE FIRST 50 DELETIONS IN EACH PAPER ACCORDING TO STRUCTURAL-LEXICAL DELETIONS AND READING-WRITING MODALITIES. IT WAS FOUND THAT THE PRODUCER-PREDICTOR COULD PREDICT BOTH STRUCTURAL AND LEXICAL DELETIONS AT ABOUT THE SAME RATE (85 PERCENT). THE READER-PREDICTOR COULD PREDICT STRUCTURAL WORDS AS WELL AS THE PRODUCER, BUT COULD NOT PREDICT LEXICAL WORDS. THEORETICAL IMPLICATIONS ARE DISCUSSED. REFERENCES AND A TABLE ARE INCLUDED. THE PAPER APPEARS IN THE 1967 PROCEEDINGS OF THE AMERICAN PSYCHOLOGICAL ASSOCIATION, DIVISION 15. (LS)

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Abstract

Structural-Lexical Predictability of Materials which Predictor has Previously Produced or Read

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This study uses the cloze procedure, to investigate the predictability of language materials when the predictor has previously produced the materials compared with the predictability when the predictor has read the materials produced by another. A structural, lexical classification of the words in the language text was made and words deleted selectively in order to distinguish the two effects.

It was found that the producer-predictor could predict both structural and lexical deletions at about the same rate (85%) while the reader-predictor could predict structural words as well as the producer but not lexical words. Theoretical implications are discussed.

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Structural-Lexical Predictability of Materials which Predictor has Previously Produced or Read

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The present study dicotomizes English language materials into structural and lexical parts in order to examine the relationship of the written production of language, and reading to these constructs.

The assumption is, that the very frequent words of the language are the major organizational parts of the language. That is, structure is defined as the commonality which allows a member of a language community to "know," to a degree, what to expect when a communication attempt occurs, even before the language sequence begins. If this is a tenable categorization one should be able to show that structural units are more predictable between interpreters than lexical units. Since language within the interpreter has potentially different communication channels than language between interpreters, one would expect a subject to be able to predict his own, previously produced, lexical units as well as he predicts his own structural units.

The cloze procedure, a language deletion technique developed by Taylor (1954), was used to construct measures of predictability of structural and lexical units. The terms structural and lexical were first applied to the cloze procedure by Rankin (1957). He used the terminology

and concepts of the linguist Fries (1952) to delineate what Fries calls structural and lexical "meaning." Rankin's argument maintains that "any-word" cloze (an n^{th} word deletion) would sample the more frequent function words at a greater rate than lexical words (in Rankin's study, nouns and main verbs) and thus would measure structural meaning to a greater extent than lexical meaning when the subjects subsequently filled in the exact word removed from the language passage. Conversely, deleting only nouns and main verbs would sample lexical meaning more than structural meaning when subjects replaced the words. Structure is therefore confounded, to an indeterminable degree, with the lexical. The procedure for selecting structural units in this study was an attempt to reduce this confounding.

It has been demonstrated in previous studies using the cloze procedure that structural deletions are more predictable than lexical deletions under the reading condition (Rankin, 1957). It has been assumed this is because there is high frequency of occurence and restricted numbers of types in the categories of words making up the structural deletions. For this reason one would expect only a small difference, if any, in the ability of subjects to supply structural cloze units whether the subject had written or read the passage previously.

In contrast, lexical categories are open, and any particular member of a category has a low frequency of occurrence. There is much room for variation. One would expect differences between structural and lexical categories on these bases. In the light of these differences between writing and reading it is not likely that large differences would be found in responses to structural deletions. One would hypothesize that

most of the differences in the treatments is in the lexical dimension.

Method

The two groups assigned to the writing modality treatment were instructed to produce written stories to two TAT cards (#2 and #178F). They were given spirit-duplicator master, ruled with two-inch horizontal lines in columns, on which to record their responses. They were instructed to print.

As soon as these two groups had finished, their productions were duplicated, shuffled, and assigned at random to the groups receiving the reading treatment. All groups were told before they began their respective tasks that they would be asked to recall later what they had written or read.

Cloze tasks were prepared from the stories which the writing modality groups had produced. The following categories were selected for the structural deletion because of the high frequency of successful cloze completions by subjects in Coleman's (in Press) extensive study of cloze scores obtained with various word classes. Every fifth structural unit

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Insert Table 1 about here

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was deleted and replaced by an underline, twelve spaces long.

On another set of stories duplicate from the same producing groups, all words were identified which had not been included in the structural categories. These were designated lexical words. Every fifth word was deleted and replaced by a standard underline.

The subjects were 56 sophomores randomly selected from 152 sophomores enrolled in introductory psychology courses at Campbell College. The subjects were randomly assigned to treatments. Two days after receiving the experimental treatment (writing modality or reading modality) the subjects were presented with the cloze tasks. They were instructed to attempt to fill in the exact word which had been in the blank, and reminded that they had written or read the passage before. Only the first fifty deletions in each paper were scored in order to equate the total possible response score.

Results

A two-way analysis-of-variance was computed on the data. Results were as follows: deletions (structural-lexical) 1 d.f./335 M.S./10.88F; modalities (reading-writing) 1 d.f./418M.S./13.58F/ interaction 1 d.f./ 341M.S./11.21F. Error was 52 d.f./30.77M.S. All effects were significant at the .05 level. The cell representing the reading group completing lexical units was the source of practically all the variation.

Discussion

The writer is able to reproduce his own lexical items to a greater extent than the reader can reproduce the same lexical items. However, the reader can reproduce the writer's structure as well as the writer himself. This implies that, in the case of structure, writers and readers of the language possess identical language elements and highly similar probabilities of the occurence of those language elements in particular contexts.

It is interesting to consider these fingings in relation to the

constructs of the linguist Saussure (1959). Saussure divides the concept "language," as used in English, into two concepts which he designates by the French words "la langue" and "la parole." La langue is an abstraction. It is all the possible communication acts which potentially could be carried out by all individuals separately within a particular language community. La parole is language acts initiated by a particular individual. Saussure contrasts these concepts at several points, e.g. designates la langue as receptive and passive; la parole as executive and active.

Psychologically, as Saussure defines it, la langue has no reality. There seems to be no separate provision for those aspects of the language (la langue) which a particular individual can interpret as distinct from aspects of language (again la langue) which he cannot.

The results of this study seem to contradict certain implications of these constructs and to support others. The writer of stories in response to TAT cards is exhibiting la parole. The fact that structural and lexical meaning are similarly controlled by the producer fits Saussure's concepts. When one considers the interpretive side, points of contradiction arise. La langue is defined by the characteristic that no individual in a language community possesses it. It is the sum of all individual language possessions. Contradictorily, from the present study one infers a language subsystem (the structural) which allows a particular language user to possess all possibilites in that subsystem. This is not to say that every language user actually possesses the total distribution, but rather that, in principle, this is possible. The

other subsystem (the lexical) is unobtainable in its entirety by any one member of the language community, not because of its enormous size alone, but, in principle, because of basic denotative and connotative contradictions. Denotatively, for example, the same individual cannot assign two contradictory sense impressions to the same object simultaneously. In association studies, iodine is reported by some subjects as "red" and by other subjects as "brown" (Underwood, 1956). One does not conceive of iodine as "red" and "brown" simultaneously in this language community. Connotatively, the word"dog" cannot arouse panic and calm contemplation in the same individual simultaneously. Both reaction, however, may be exhibited consistently by different members of the language community.

Hockett (1963) lists the characteristic of "plural subsystems" as one of the universals of language. Whatever the nature of the constructs by which linguists delineate the categories, there is a ubiquitous emphasis on an enormous number of content elements, mapped onto a small number of meaningless, but message-differentiating, elements. This study demonstrates a differentiation in psychological responses to two of the widely used linguistic categories.

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Table 1

Cloze Completion Percentage of Word Classes

Word Class	Example	Percent Completion
Verb (copula)	is	76
Article	the	74
Possessive Pronoun	his	58
Modal Auxillary	could	75
Not	not	76
Coordinating conjunction	and	65
Preposition	from	67
Do	do	85
There	there	75
Wh-Words	where	86
Subordinating conjunction	since	55
Particle	go in	61
Address	Mrs.	79
To	to go	90
Pronoun	you	72
Sounds	bam	95

[a]selected from Coleman (in press).